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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,125	05/31/2001	Steve West	5043P013	5575

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EXAMINER	
MEHRA, INDER P	

ART UNIT	PAPER NUMBER
2663	

DATE MAILED: 07/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/872,125	WEST ET AL.	
	Examiner	Art Unit	
	Inder P Mehra	2663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 May 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

Refer to page 8 lines 11 and 19 and page 12 line 20. Blank spaces need to be filled..

Refer to page 6 line 10. Replace "network 104" with "network 106".

Refer to page 6 line 12. Replace "network 126" with "network 128".

Refer to page 6 line 13. Replace "router/host 128" with "router/host 126".

Refer to page 11 line 1. Replace "in" with "is".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims 1-5, 8, 10-11, 13-14, 17, 19-21 are rejected under 35 U.S.C. 102(e) as being anticipated by **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku.

Regarding claims 1, 11, 19 and 20, Ku discloses, in reference to figs. 1, 2, 5 and 6, network domain (also referred to as a network "cloud") (network mesh) transporting data of various formats, such as ATM (asynchronous), frame relay, PPP, Ethernet, etc. At ingress points to the system, the data is received from data sources, at egress points, the data is reconverted to its original format for use at destination, refer to page 2, paragraph 0020, (a network switch

having an asynchronous mesh to transfer data from ingress interface to egress interface -------- transmit the data to external destination);

Regarding claim 2, Ku discloses, in reference to figs. 3 and 6, priority value 304 in fig. 3; and scheduler 620 in fig. 6, where the scheduling is performed, refer to page 4 paragraph 0052, and page 7 paragraph 0074 and paragraph 0075; schedulers for scheduling the forwarding of the data via one or more of the data communication interfaces (transmission across the mesh to destination), refer to page 2 and paragraph 0023.

Regarding claims 3 and 4, Ku discloses N ingress interfaces and each of ingress interfaces comprises N independent cache buffers; N independent cache buffers coupled to each of egress buffers refer to fig. 5 and page 5 paragraph 0060.

Regarding claims 5 and 21, Ku discloses, in reference to figs. 6, 8, and 9, queuing engines associated with buffers wherein one or more of the ingress interfaces segregates incoming data queues based on one or more of a flow of identifier, page 8 paragraph 0091, a user identifier, page 7. refer to paragraph 71, a session identifier (multi-cast or uni-cast, refer to page 8 paragraph 0091, a quality of service (QOS), a priority, refer to page 13 paragraph 0139, a deadline, and a service class, refer to page 5 paragraph 0062.

Regarding claims 8 and 17, Ku discloses, in reference to fig. 5, switch wherein ingress interfaces transfer data to shared egress buffer 618, each egress buffer including a data store for

each of the plurality of egress port, as recited in claim 17, schedule and retrieve data for transmission to the destination (port A-D out), refer to fig. 5, and refer to page 7 paragraph 0078, page 13 lines paragraph 0139 and claim 1.

Regarding claim 10, Ku discloses external equipment 112 (ingress interface) operating in accordance with any of communication protocols, such as, ATM (fixed length) and frame relay (variable length packets utilized with in the domain 100 (network/mesh) to destination 122 (egress interface), refer to page 3 paragraph 0042 and claims 1 and 2.

Regarding claims 13 and 14, Ku discloses scheduled transmission according to priorities (as recited by claim 13), refer to page 13 and paragraph 0139; and further, discloses data communications, such as, ATM, frame relay, and TDM (telecommunications data, as recited in claim 14), refer to page 3 paragraph 0042.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6-7, 9, 15, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku in view of **Lewin et al** (US Patent No. 6,201,809), hereinafter Lewin.

Regarding claims 6-7, 9 and 15, Ku discloses switch to become congested and packets lost by overrunning the input buffers, refer to page 1 paragraph 0012; and control scheduling of packet forwarding by the switch, refer to page 13 paragraph 0137; further, Ku discloses the plurality of ports of the egress cards further comprises one or more buffers to temporarily store data received from respective ingress cards, as recited by claim 15, refer to figs. 2, 3A-3B and col. 3 lines 44-47.

Ku does not disclose expressly the following limitations:

- to prevent access and transmission to one or more of the N buffers of the respective egress interface, as taught by claims 6 and 7;
- to prevent access by one or more of the queues at the ingress interfaces to the egress buffer, as taught by claim 9;
- if buffer of a port of an egress card is full the buffer and the port refuse data transmission from the associated ingress card, as taught by claim 15;

Lewin discloses outport k having become congested, it is desired to issue backpressure indication towards the ingress of the switch in order that traffic be inhibited to output port k and more than one backpressure bit can be set. Backpressure bits to a multiple of output ports can be generated simultaneously, refer to col. 3 lines 39-47.

A person of ordinary skill in the art would have been motivated to employ Lewin's port redundancy and backpressure translation table apparatus into Ku's switch in order to modify routing tag before the cell is transferred to the switching fabric. The suggestion/motivation to do so would have been to prevent congestion and loss of packets. It would have been obvious to a

person of ordinary skill in the art to use control signal to provide backpressure to ingress and either divert traffic to another port or prevent access to egress port.

6. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku in view of **Huscroft et al** (US Patent No. 5,889,778), hereinafter Huscroft.

Regarding claim 12, Ku discloses queues and buffers 618, fig. 5 and refer to page 6 paragraph 0062, wherein data is stored from ingress;

Ku does not disclose expressly FIFO buffer;

Huscroft discloses FIFO buffer 52 in fig. 5 receiving data from incoming cells, refer to col. 4 lines 37-46;

A person of ordinary skill in the art would have been motivated to employ Huscroft's ATM layer device into Ku's switch in order to prepend and postpend routing information . The suggestion/motivation to do so would have been to identify the cells. It would have been obvious to a person of ordinary skill in the art to use FIFO buffer in order to regulate the flow of transmission of data across the mesh.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku in view of **Hunt et al** (US Patent No. 6,201,809), hereinafter Hunt.

Regarding claim 16, Ku discloses retransmission of packet received at input pot (ingress port) and stored in buffer 618 for retransmission in non-blocking manner so that packets do not

impede each other, refer to page 7 paragraph 0073; further discloses loss of packets due to congestion (refused packets), refer to page 1 paragraph 0012;

Ku does not disclose expressly the ingress card from which data was refused retransmits the refused data until the associated egress port and buffer accept the previously refused data;

Hunt discloses overrun of destination host by the source host, refer to col. 6 lines 30-33; further, discloses retransmission of data by the source host, refer to col. 8 lines 59-60; and also determines that the segment being transmitted was already delivered to the destination host, and, therefore, need not send duplicate data, refer to col. 8 lines 60-65;

A person of ordinary skill in the art would have been motivated to employ Hunt's lower layer flow control system into Ku's switch in order to retransmit packet information and restore the flow control. The suggestion/motivation to do so would have been to identify the packets which might have been lost due to congestion or overflow at the egress port. It would have been obvious to a person of ordinary skill in the art to retransmit the lost packet until the associated port accept the previously refused packet, and also to maintain the flow of transmission of data across the mesh.

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over **Ku et al** (US Pub. No. 2002/3385567), hereinafter, Ku in view of **Kadambi et al** (US Patent No. 6,154,446), hereinafter Kadambi.

Regarding claim 18, Ku discloses storage of packet data in buffers 618, fig. 5;

Ku does not disclose expressly storage of packet data in each of the ports according to an associated class;

Kadambi discloses storage per class of service, refer to col. 13 lines 56-58;

A person of ordinary skill in the art would have been motivated to employ Kadambi's network switching architecture into Ku's switch in order to store data in egress storage buffers.. The suggestion/motivation to do so would have been to integrate packets according to class of service . It would have been obvious to a person of ordinary skill in the art to integrate data and facilitate identification of data as well as its destination.

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Feldman (US Patent No. 6,130,889) discloses determining and maintaining hop count for switched network.
- Wicklund (US Patent No. 6,185,209) discloses VC merging for ATM switch and egress port connected to receiving cells from the switch core.
- Constantin et al (US Patent No. 6,198,725) discloses network element delay allocation for efficient use of network resources.

Conclusion

10. Any enquiry concerning this communication should be directed to Inder Mehra whose telephone number is (703) 305-1985. The examiner can be normally reached on Monday through Friday from 8:30AM to 5:00 PM.

If attempt to reach the examiner by telephone is unsuccessful, the examiner's supervisor, Chau Nguyen , can be reached on (703) 308-5340. Any enquiry of a general nature of relating to the

status of this application or processing should be directed to the group receptionist whose telephone number is (703) 305-4700.

11. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, DC. 20231

Or faxed to (703) 872-9314.

Hand –delivered responses should be brought to Crystal Park II, 2121 Crystal drive, Arlington, VA, sixth floor (Receptionist).

Inder Mehra

Inder Mehra 7/10/02

July 7, 2002

MELVIN MARCELO
PRIMARY EXAMINER